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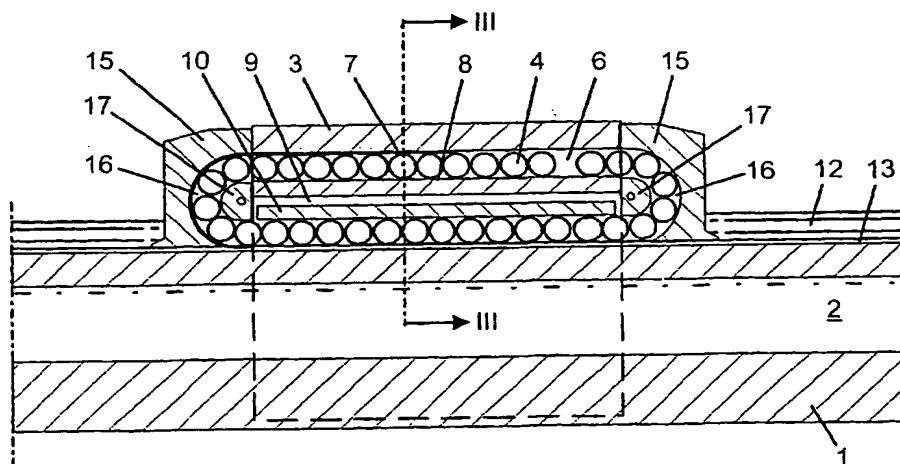
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **ARRANGEMENT AT A SLIDE MOVABLE ON A GUIDE**



(57) Abstract: An arrangement at a slide (3) movable on a guide (1) and provided with longitudinal channels (6), in order to control with rolling elements (4), which travel continuously during operation in the slide (3), the slide at the guide (1). The invention is characterised in that the slide is equipped in connection with the relevant channel (6) with a roller pathway (8) of steel tape in the form of an infinite loop with straight sections (8a, 8b) adapted to the length of the slide, whereby one section (8b) that faces the guide forms a bearing roller pathway under the rolling elements (4) returning from the interaction with the guide. The first section (8b) is held by a spring (9) that acts between the slide (3) and the first section (8b). The continuously curved sections that join the straight sections of the roller pathway (8) extend outside of the ends of the slide and are surrounded each by a roller transfer (15) with a channel (16) open to the curved section of the roller pathway for transfer of the roller elements (4) from the first straight section to the second straight section, for the return of the rolling elements (4) following movement of the slide (3) along the guide (1).

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Arrangement at a slide movable on a guide

The present invention concerns an arrangement at a slide, movable on a guide, according to the introduction to claim 1.

5 Control systems of the type intended here in the form of a slide, movable on a guide with the aid of rollers or balls, are previously known, one form of such is one in which the rolling elements follow the guide linearly during movement of the slide with the aid of roller guides, which move during the movement of the slide at half of the speed of the slide. See, for example, the Swedish patent document 506 402. The
10 disadvantage of these systems is that there is a risk that the roller guides with their rolling elements will be displaced from their initial positions during movement with subsequent disadvantages. Another form is one in which the rolling elements circulate in the slide. The slide and the guide must in this case be manufactured from hardened steel with ground rolling paths of high precision, in order to achieve as little
15 play as possible and in order that the rolling elements should not deform the rolling path in the slide at high load or as a result of wear. It is expensive to manufacture these systems.

The present invention is intended to make the use of the latter system possible, but with the use of relatively cheap material, such as, for example,
20 aluminium in the guide. Furthermore, quiet operation is obtained through the invention, as this is revealed in the characterising elements of the claims, and it is possible to use extruded slides and guides with a length that is, in principle, without limit.

The invention will now be described in more detail in the form of examples
25 with reference to the drawings, in which **Figure 1** shows schematically a longitudinal section I-I in Figure 2 through one part of a guide, on which guide a slide can move, **Figure 2** shows schematically, for the purpose of clarification without shading a cross-section through a guide with a slide that moves on it, **Figure 3** shows a section III-III in Figure 1, **Figure 4a** and **Figure 4b** show schematically one item that is part
30 of the slide from the side and from the top, respectively, and **Figure 5** shows schematically another item that is part of the slide.

Reference numeral 1 in the drawings refers to a guide of extruded light metal with a cavity 2 that extends the complete length of the guide. A slide 3 straddles the guide 1 (see Figure 2) and can be moved with the aid of rollers 4 that run against the
35 guide 1 and that circulate in the slide 3. The slide 3 offers a longitudinal channel 6 with a width so adapted that the rollers 4 can move without hindrance in the channel 6. The channel 6 is provided on the surface that faces outwards with tracks that face

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It is to be understood that the slide and the guides can have another design of cross-section than that shown here; the number can be different; and the longitudinal channels can be placed differently. In the same way, it is to be understood that balls can be used in the place of rollers 4.

- 5 In order to reduce the friction of the rollers 4 in each channel 12 of the slide 3, and in order to reduce the level of noise from the rollers when in use, plastic longitudinal side-supports 18 can be placed on each side in the relevant channel 12 of the guide 1 (see Figure 3), and it is appropriate that these side-supports 18 are controlled with the aid of protruding beads that engage side-tracks in the channel 12.
- 10 A further measure is to arrange plastic spacers between the rolling elements.

Claims

1. An arrangement at a slide (3) movable on a guide (1) and provided with longitudinal channels (6), in order to control with rolling elements (4), which travel continuously during operation in the slide (3), the slide at the guide (1),
5 c h a r a c t e r i s e d in that the slide is equipped in connection with the relevant channel (6) with a roller pathway (8) of steel tape in the form of an infinite loop with straight sections (8a, 8b) adapted to the length of the slide, whereby one section (8b) that faces the guide (1) forms a bearing roller pathway for the roller elements, which roller pathway lies over, when seen from the guide (1), the rolling elements (4), which
10 interact with the guide (1), and the second section (8a), which faces away from the guide, forms a bearing roller pathway under the rolling elements (4) for the rolling elements returning from the interaction with the guide, that the first section (8b) is held by a spring (9) that acts between the slide (3) and the first section (8b), that continuously curved sections that join the straight sections of the roller pathway (8)
15 extend outside of the ends of the slide and are surrounded each by a roller transfer (15) with a channel (16) open to the curved section of the roller pathway for transfer of the roller elements (4) from the first straight section to the second straight section, for the return of the rolling elements (4) following movement of the slide (3) along the guide (1).
- 20 2. The arrangement according to claim 1, c h a r a c t e r i s e d in that each roller transfer (15) is equipped with a controlling part (17) arranged such that it extends, when the roller transfer (15) is assembled with fit, into the space formed by the end of the slide (3) and the section of the roller pathway (8) that extends outside of this, in this way fixing the roller pathway and the roller transfers (15) relative to
25 each other and at the slide (3).
3. The arrangement according to claim 1 or 2, c h a r a c t e r i s e d in that roller pathways (13) in the form of steel tape are arranged that extend along the guide at the bottom of channels (12) for the rolling elements⁽⁴⁾ inserted into the guide (1).
- 30 4. The arrangement according to claim 1, 2 or 3, c h a r a c t e r i s e d in that side supports (18) extend on each side of the rolling elements (4) between the roller transfers (15), running in channels (12) in the guide⁽¹⁾ intended for the rolling elements (14).
5. The arrangement according to claim 2, 3 or 4, c h a r a c t e r i s e d in that
35 the roller transfers (15) consist of plastic.
6. The arrangement according to any one of the preceding claims, c h a r a c t e r i s e d in that the rolling elements (4) consist of rollers.

7. The arrangement according to any one of claims 1-5,
characterised in that the rolling elements (4) consist of balls.

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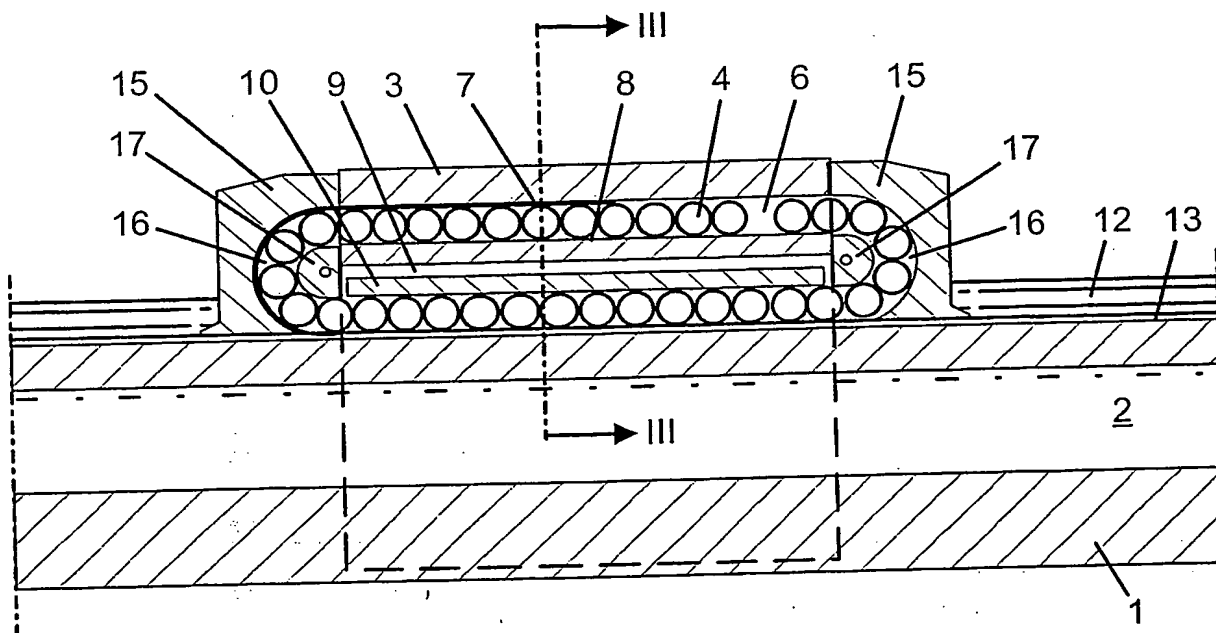


FIG. 1

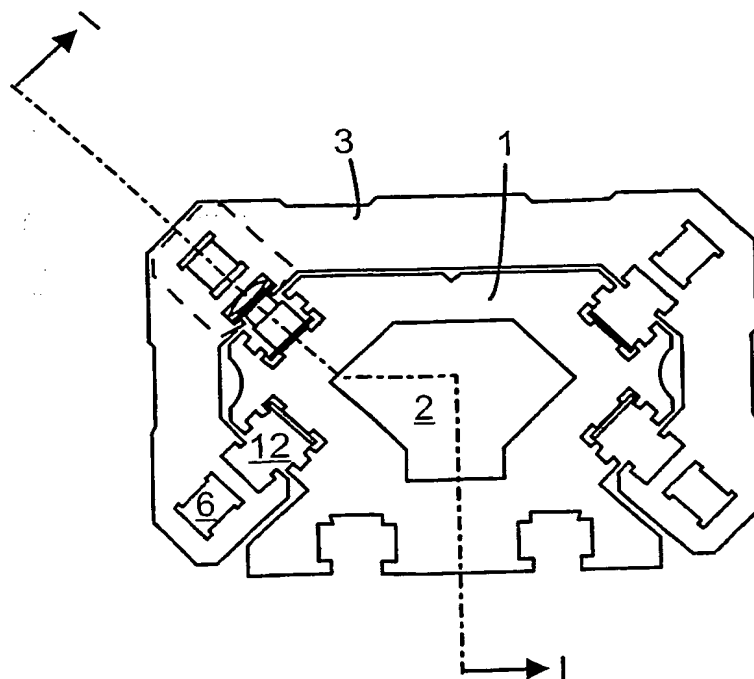
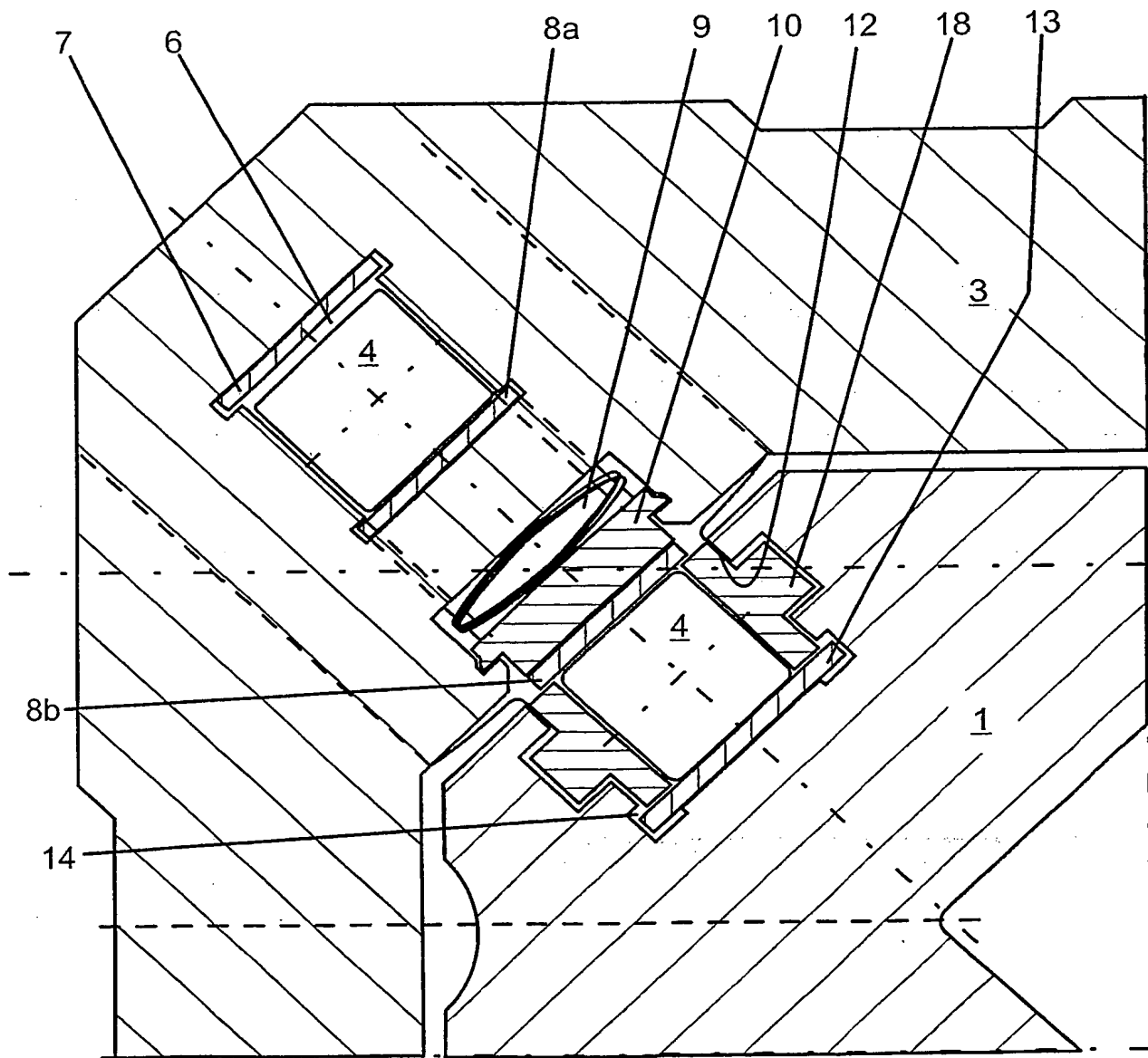


FIG. 2

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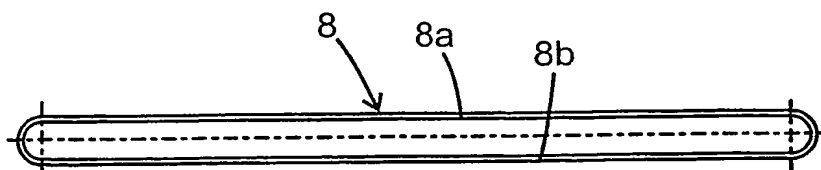


FIG. 4a

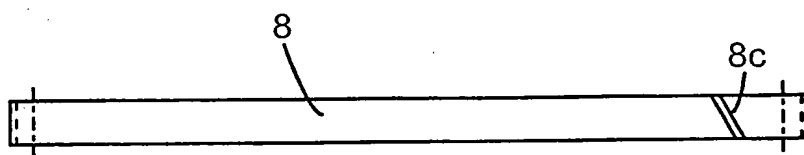


FIG. 4b

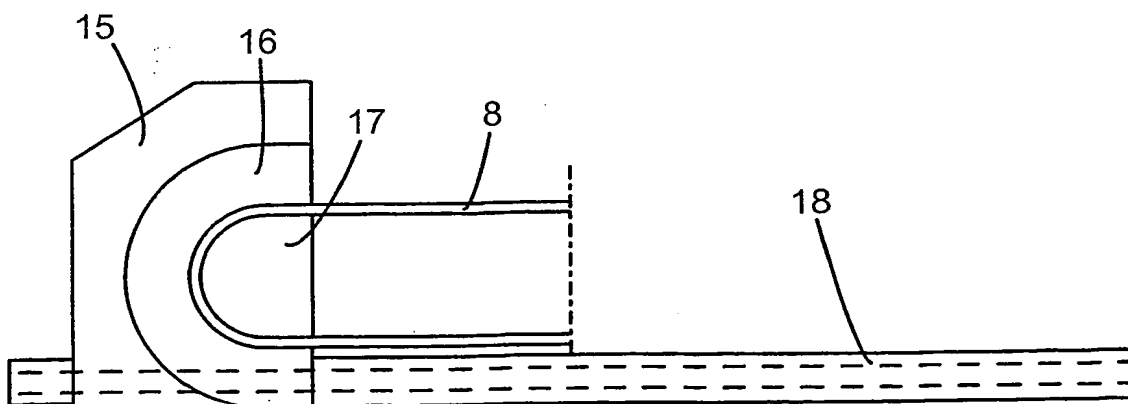


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 02/02059

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: F16C 29/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: F16C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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A	EP 0846880 A1 (THK CO. LTD.), 10 June 1998 (10.06.98), figure 1, abstract -- -----	1-7

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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INTERNATIONAL SEARCH REPORT

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